## hellopyqt.py (Page 1 of 1)

```
 1: #!/usr/bin/env python
 2:
 3: #-----------------------------------------------------------------------
 4: # hellopyqt.py
 5: # Author: Bob Dondero
 6: #-----------------------------------------------------------------------
 7:
 8: import sys
 9: import PyQt5.QtWidgets
10:
11: #-----------------------------------------------------------------------
12:
13: def main():
14:
15:     app = PyQt5.QtWidgets.QApplication(sys.argv)
16:
17:     label = PyQt5.QtWidgets.QLabel('Hello, world')
18:
19:     layout = PyQt5.QtWidgets.QGridLayout()
20:     layout.addWidget(label, 0, 0)
21:     frame = PyQt5.QtWidgets.QFrame()
22:     frame.setLayout(layout)
23:
24:     window = PyQt5.QtWidgets.QMainWindow()
25:     window.setWindowTitle('Hello World in PyQt')
26:     window.setCentralWidget(frame)
27:     screen_size = PyQt5.QtWidgets.QDesktopWidget().screenGeometry()
28:     window.resize(screen_size.width()//2, screen_size.height()//2)
29:
30:     window.show()
31:     sys.exit(app.exec_())
32:
33: if __name__ == '__main__':
34:     main()
```

## widgetqlabel.py (Page 1 of 1)

```
 1: #!/usr/bin/env python
 2:
 3: #-----------------------------------------------------------------------
 4: # widgetqlabel.py
 5: # Author: Bob Dondero
 6: #-----------------------------------------------------------------------
 7:
 8: import sys
 9: import PyQt5.QtWidgets
10:
11: #-----------------------------------------------------------------------
12:
13: def main():
14:
15:     app = PyQt5.QtWidgets.QApplication(sys.argv)
16:
17:     label = PyQt5.QtWidgets.QLabel('This is a QLabel')
18:
19:     layout = PyQt5.QtWidgets.QGridLayout()
20:     layout.addWidget(label, 0, 0)
21:     frame = PyQt5.QtWidgets.QFrame()
22:     frame.setLayout(layout)
23:
24:     window = PyQt5.QtWidgets.QMainWindow()
25:     window.setWindowTitle('Widget Test: QLabel')
26:     window.setCentralWidget(frame)
27:     screen_size = PyQt5.QtWidgets.QDesktopWidget().screenGeometry()
28:     window.resize(screen_size.width()//2, screen_size.height()//2)
29:
30:     window.show()
31:     sys.exit(app.exec_())
32:
33: if __name__ == '__main__':
34:     main()
```

## widgetqpushbutton.py (Page 1 of 1)

```
 1: #!/usr/bin/env python
 2:
 3: #-----------------------------------------------------------------------
 4: # widgetqpushbutton.py
 5: # Author: Bob Dondero
 6: #-----------------------------------------------------------------------
 7:
 8: import sys
 9: import PyQt5.QtWidgets
10:
11: #-----------------------------------------------------------------------
12:
13: def main():
14:
15:     app = PyQt5.QtWidgets.QApplication(sys.argv)
16:
17:     button = PyQt5.QtWidgets.QPushButton('This is a QPushButton')
18:
19:     layout = PyQt5.QtWidgets.QGridLayout()
20:     layout.addWidget(button, 0, 0)
21:     frame = PyQt5.QtWidgets.QFrame()
22:     frame.setLayout(layout)
23:
24:     window = PyQt5.QtWidgets.QMainWindow()
25:     window.setWindowTitle('Widget Test: QPushButton')
26:     window.setCentralWidget(frame)
27:     screen_size = PyQt5.QtWidgets.QDesktopWidget().screenGeometry()
28:     window.resize(screen_size.width()//2, screen_size.height()//2)
29:
30:     window.show()
31:     sys.exit(app.exec_())
32:
33: if __name__ == '__main__':
34:     main()
```

## widgetqlineedit.py (Page 1 of 1)

```
 1: #!/usr/bin/env python
 2:
 3: #-----------------------------------------------------------------------
 4: # widgetqlineedit.py
 5: # Author: Bob Dondero
 6: #-----------------------------------------------------------------------
 7:
 8: import sys
 9: import PyQt5.QtWidgets
10:
11: #-----------------------------------------------------------------------
12:
13: def main():
14:
15:     app = PyQt5.QtWidgets.QApplication(sys.argv)
16:
17:     lineedit = PyQt5.QtWidgets.QLineEdit('This is a QLineEdit')
18:
19:     layout = PyQt5.QtWidgets.QGridLayout()
20:     layout.addWidget(lineedit, 0, 0)
21:     frame = PyQt5.QtWidgets.QFrame()
22:     frame.setLayout(layout)
23:
24:     window = PyQt5.QtWidgets.QMainWindow()
25:     window.setWindowTitle('Widget Test: QLineEdit')
26:     window.setCentralWidget(frame)
27:     screen_size = PyQt5.QtWidgets.QDesktopWidget().screenGeometry()
28:     window.resize(screen_size.width()//2, screen_size.height()//2)
29:
30:     window.show()
31:     sys.exit(app.exec_())
32:
33: if __name__ == '__main__':
34:     main()
```

## widgetqtextedit.py (Page 1 of 1)

```
#!/usr/bin/env python

#-----------------------------------------------------------------------
# widgetqtextedit.py
# Author: Bob Dondero
#-----------------------------------------------------------------------

import sys
import PyQt5.QtWidgets

#-----------------------------------------------------------------------

def main():

    app = PyQt5.QtWidgets.QApplication(sys.argv)

    long_str = 'Red Orange Yellow Green Blue Violet '
    long_str += 'Red Orange Yellow Green Blue Violet '
    long_str += 'Red Orange Yellow Green Blue Violet '
    long_str += 'Red Orange Yellow Green Blue Violet '
    long_str += 'Red Orange Yellow Green Blue Violet '
    long_str += 'Red Orange Yellow Green Blue Violet'
    textedit = PyQt5.QtWidgets.QTextEdit(
        'This is a QTextEdit ' + long_str)

    layout = PyQt5.QtWidgets.QGridLayout()
    layout.addWidget(textedit, 0, 0)
    frame = PyQt5.QtWidgets.QFrame()
    frame.setLayout(layout)

    window = PyQt5.QtWidgets.QMainWindow()
    window.setWindowTitle('Widget Test: QTextEdit')
    window.setCentralWidget(frame)
    screen_size = PyQt5.QtWidgets.QDesktopWidget().screenGeometry()
    window.resize(screen_size.width()//2, screen_size.height()//2)

    window.show()
    sys.exit(app.exec_())

if __name__ == '__main__':
    main()
```

## widgetqslider.py (Page 1 of 1)

```
#!/usr/bin/env python

#-----------------------------------------------------------------------
# widgetqslider.py
# Author: Bob Dondero
#-----------------------------------------------------------------------

import sys
import PyQt5.QtWidgets

#-----------------------------------------------------------------------

def main():

    app = PyQt5.QtWidgets.QApplication(sys.argv)

    slider = PyQt5.QtWidgets.QSlider(PyQt5.QtCore.Qt.Horizontal)
    slider.setMinimum(0)
    slider.setMaximum(100)
    slider.setTickPosition(PyQt5.QtWidgets.QSlider.TicksBelow)
    slider.setTickInterval(20)
    slider.setValue(20)

    layout = PyQt5.QtWidgets.QGridLayout()
    layout.addWidget(slider, 0, 0)
    frame = PyQt5.QtWidgets.QFrame()
    frame.setLayout(layout)

    window = PyQt5.QtWidgets.QMainWindow()
    window.setWindowTitle('Widget Test: QSlider')
    window.setCentralWidget(frame)
    screen_size = PyQt5.QtWidgets.QDesktopWidget().screenGeometry()
    window.resize(screen_size.width()//2, screen_size.height()//2)

    window.show()
    sys.exit(app.exec_())

if __name__ == '__main__':
    main()
```

## widgetqcheckbox.py (Page 1 of 1)

```
 1: #!/usr/bin/env python
 2:
 3: #-----------------------------------------------------------------------
 4: # widgetqcheckbox.py
 5: # Author: Bob Dondero
 6: #-----------------------------------------------------------------------
 7:
 8: import sys
 9: import PyQt5.QtWidgets
10:
11: #-----------------------------------------------------------------------
12:
13: def main():
14:
15:     app = PyQt5.QtWidgets.QApplication(sys.argv)
16:
17:     checkbox = PyQt5.QtWidgets.QCheckBox('This is a QCheckBox')
18:
19:     layout = PyQt5.QtWidgets.QGridLayout()
20:     layout.addWidget(checkbox, 0, 0)
21:     frame = PyQt5.QtWidgets.QFrame()
22:     frame.setLayout(layout)
23:
24:     window = PyQt5.QtWidgets.QMainWindow()
25:     window.setWindowTitle('Widget Test: QCheckBox')
26:     window.setCentralWidget(frame)
27:     screen_size = PyQt5.QtWidgets.QDesktopWidget().screenGeometry()
28:     window.resize(screen_size.width()//2, screen_size.height()//2)
29:
30:     window.show()
31:     sys.exit(app.exec_())
32:
33: if __name__ == '__main__':
34:     main()
```

## widgetqradiobuttons.py (Page 1 of 1)

```
 1: #!/usr/bin/env python
 2:
 3: #-----------------------------------------------------------------------
 4: # widgetqradiobuttons.py
 5: # Author: Bob Dondero
 6: #-----------------------------------------------------------------------
 7:
 8: import sys
 9: import PyQt5.QtWidgets
10:
11: #-----------------------------------------------------------------------
12:
13: def main():
14:
15:     app = PyQt5.QtWidgets.QApplication(sys.argv)
16:
17:     red_radiobutton = PyQt5.QtWidgets.QRadioButton(
18:         'Red QRadioButton')
19:     green_radiobutton = PyQt5.QtWidgets.QRadioButton(
20:         'Green QRadioButton')
21:     blue_radiobutton = PyQt5.QtWidgets.QRadioButton(
22:         'Blue QRadioButton')
23:
24:     red_radiobutton.setChecked(True)
25:
26:     layout = PyQt5.QtWidgets.QGridLayout()
27:     layout.addWidget(red_radiobutton, 0, 0)
28:     layout.addWidget(green_radiobutton, 1, 0)
29:     layout.addWidget(blue_radiobutton, 2, 0)
30:     radiobutton_frame = PyQt5.QtWidgets.QFrame()
31:     radiobutton_frame.setLayout(layout)
32:
33:     layout = PyQt5.QtWidgets.QGridLayout()
34:     layout.addWidget(radiobutton_frame, 0, 0)
35:     frame = PyQt5.QtWidgets.QFrame()
36:     frame.setLayout(layout)
37:
38:     window = PyQt5.QtWidgets.QMainWindow()
39:     window.setWindowTitle('Widget Test: QRadioButtons')
40:     window.setCentralWidget(frame)
41:     screen_size = PyQt5.QtWidgets.QDesktopWidget().screenGeometry()
42:     window.resize(screen_size.width()//2, screen_size.height()//2)
43:
44:     window.show()
45:     sys.exit(app.exec_())
46:
47: if __name__ == '__main__':
48:     main()
```

## widgetqlistwidget.py (Page 1 of 1)

```
 1: #!/usr/bin/env python
 2:
 3: #-----------------------------------------------------------------------
 4: # widgetqlistwidget.py
 5: # Author: Bob Dondero
 6: #-----------------------------------------------------------------------
 7:
 8: import sys
 9: import PyQt5.QtWidgets
10:
11: #-----------------------------------------------------------------------
12:
13: def main():
14:
15:     app = PyQt5.QtWidgets.QApplication(sys.argv)
16:
17:     listwidget = PyQt5.QtWidgets.QListWidget()
18:     listwidget.insertItem(0, 'This is a QListWidget')
19:     listwidget.insertItem(1, 'Red')
20:     listwidget.insertItem(2, 'Orange')
21:     listwidget.insertItem(3, 'Yellow')
22:     listwidget.insertItem(4, 'Green')
23:     listwidget.insertItem(5, 'Blue')
24:     listwidget.insertItem(6, 'Violet')
25:
26:     listwidget.setCurrentRow(1)
27:
28:     layout = PyQt5.QtWidgets.QGridLayout()
29:     layout.addWidget(listwidget, 0, 0)
30:     frame = PyQt5.QtWidgets.QFrame()
31:     frame.setLayout(layout)
32:
33:     window = PyQt5.QtWidgets.QMainWindow()
34:     window.setWindowTitle('Widget Test: QListWidget')
35:     window.setCentralWidget(frame)
36:     screen_size = PyQt5.QtWidgets.QDesktopWidget().screenGeometry()
37:     window.resize(screen_size.width()//2, screen_size.height()//2)
38:
39:     window.show()
40:     sys.exit(app.exec_())
41:
42: if __name__ == '__main__':
43:     main()
```

## widgetmenubar.py (Page 1 of 1)

```
 1: #!/usr/bin/env python
 2:
 3: #-----------------------------------------------------------------------
 4: # widgetmenubar.py
 5: # Author: Bob Dondero
 6: #-----------------------------------------------------------------------
 7:
 8: import sys
 9: import PyQt5.QtWidgets
10:
11: #-----------------------------------------------------------------------
12:
13: def main():
14:
15:     app = PyQt5.QtWidgets.QApplication(sys.argv)
16:
17:     window = PyQt5.QtWidgets.QMainWindow()
18:     window.setWindowTitle('Widget Test: Menubar')
19:     #window.setCentralWidget(frame)
20:     screen_size = PyQt5.QtWidgets.QDesktopWidget().screenGeometry()
21:     window.resize(screen_size.width()//2, screen_size.height()//2)
22:
23:     menu_bar = window.menuBar()
24:     menu_bar.setNativeMenuBar(False) # Relevant on Mac
25:     color_menu = menu_bar.addMenu('Color')
26:     color_menu.addAction('Red')
27:     color_menu.addAction('Green')
28:     color_menu.addSeparator()
29:     blue_menu = color_menu.addMenu('Blue')
30:     blue_menu.addAction('Navy')
31:     blue_menu.addAction('Aqua')
32:
33:     window.show()
34:     sys.exit(app.exec_())
35:
36: if __name__ == '__main__':
37:     main()
```

## layoutgrid.py (Page 1 of 2)

```
#!/usr/bin/env python

#-----------------------------------------------------------------------
# layoutgrid.py
# Author: Bob Dondero
#-----------------------------------------------------------------------

import sys
import PyQt5.QtWidgets
import PyQt5.QtCore
import PyQt5.QtGui

#-----------------------------------------------------------------------

def create_label(text, color):

    label = PyQt5.QtWidgets.QLabel(text)
    label.setAlignment(PyQt5.QtCore.Qt.AlignCenter)
    label.setAutoFillBackground(True)
    palette = label.palette()
    palette.setColor(label.backgroundRole(), color)
    label.setPalette(palette)
    return label

#-----------------------------------------------------------------------

def main():

    app = PyQt5.QtWidgets.QApplication(sys.argv)

    red_label = create_label(
        'Red', PyQt5.QtCore.Qt.red)
    orange_label = create_label(
        'Orange', PyQt5.QtGui.QColor(0xFF, 0xA5, 0x00))
    yellow_label = create_label(
        'Yellow', PyQt5.QtCore.Qt.yellow)
    green_label = create_label(
        'Green', PyQt5.QtCore.Qt.green)
    blue_label = create_label(
        'Blue', PyQt5.QtCore.Qt.blue)
    violet_label = create_label(
        'Violet', PyQt5.QtGui.QColor(0x7F, 0x00, 0xFF))

    red_label.setFont(PyQt5.QtGui.QFont('Arial', 24))
    orange_label.setFont(PyQt5.QtGui.QFont('Arial', 24))
    yellow_label.setFont(PyQt5.QtGui.QFont('Arial', 24))
    green_label.setFont(PyQt5.QtGui.QFont('Arial', 24))
    blue_label.setFont(PyQt5.QtGui.QFont('Arial', 24))
    violet_label.setFont(PyQt5.QtGui.QFont('Arial', 24))

    layout = PyQt5.QtWidgets.QGridLayout()
    layout.addWidget(red_label, 0, 0)
    layout.addWidget(orange_label, 0, 1)
    layout.addWidget(yellow_label, 0, 2)
    layout.addWidget(green_label, 1, 0)
    layout.addWidget(blue_label, 1, 1)
    layout.addWidget(violet_label, 1, 2)

    frame = PyQt5.QtWidgets.QFrame()
    frame.setLayout(layout)

    window = PyQt5.QtWidgets.QMainWindow()
    window.setWindowTitle('Layout Test: QGridLayout')
    window.setCentralWidget(frame)
    screen_size = PyQt5.QtWidgets.QDesktopWidget().screenGeometry()
```

## layoutgrid.py (Page 2 of 2)

```
    window.resize(screen_size.width()//2, screen_size.height()//2)

    window.show()
    sys.exit(app.exec_())

if __name__ == '__main__':
    main()
```

## layoutgridstretch.py (Page 1 of 2)

```
#!/usr/bin/env python

#-----------------------------------------------------------------------
# layoutgridstretch.py
# Author: Bob Dondero
#-----------------------------------------------------------------------

import sys
import PyQt5.QtWidgets
import PyQt5.QtCore
import PyQt5.QtGui

#-----------------------------------------------------------------------

def create_label(text, color):
    label = PyQt5.QtWidgets.QLabel(text)
    label.setAlignment(PyQt5.QtCore.Qt.AlignCenter)
    label.setAutoFillBackground(True)
    palette = label.palette()
    palette.setColor(label.backgroundRole(), color)
    label.setPalette(palette)
    return label

#-----------------------------------------------------------------------

def main():

    app = PyQt5.QtWidgets.QApplication(sys.argv)

    north_label = create_label('North', PyQt5.QtCore.Qt.red)
    south_label = create_label('South', PyQt5.QtCore.Qt.red)
    east_label = create_label('East', PyQt5.QtCore.Qt.gray)
    west_label = create_label('West', PyQt5.QtCore.Qt.gray)
    center_label = create_label('Center', PyQt5.QtCore.Qt.green)

    north_label.setFont(PyQt5.QtGui.QFont('Arial', 24))
    south_label.setFont(PyQt5.QtGui.QFont('Arial', 24))
    east_label.setFont(PyQt5.QtGui.QFont('Arial', 24))
    west_label.setFont(PyQt5.QtGui.QFont('Arial', 24))
    center_label.setFont(PyQt5.QtGui.QFont('Arial', 24))

    layout = PyQt5.QtWidgets.QGridLayout()
    layout.setSpacing(0)
    layout.setContentsMargins(0, 0, 0, 0)
    layout.addWidget(north_label, 0, 0, 1, 3)
    layout.addWidget(west_label, 1, 0)
    layout.addWidget(center_label, 1, 1)
    layout.addWidget(east_label, 1, 2)
    layout.addWidget(south_label, 2, 0, 1, 3)
    layout.setRowStretch(0, 0)
    layout.setRowStretch(1, 1)
    layout.setRowStretch(2, 0)
    layout.setColumnStretch(0, 0)
    layout.setColumnStretch(1, 1)
    layout.setColumnStretch(2, 0)

    frame = PyQt5.QtWidgets.QFrame()
    frame.setLayout(layout)

    window = PyQt5.QtWidgets.QMainWindow()
    window.setWindowTitle('Layout Test: QGridLayout')
    window.setCentralWidget(frame)
    screen_size = PyQt5.QtWidgets.QDesktopWidget().screenGeometry()
    window.resize(screen_size.width()//2, screen_size.height()//2)

```

## layoutgridstretch.py (Page 2 of 2)

```
    window.show()
    sys.exit(app.exec_())

if __name__ == '__main__':
    main()
```